a large number of polar bears because: (1) changes in the extent of ice and precipitation patterns are already occurring in the region; (2) the area is characterized by lower prey productivity (e.g., lower seal densities); and (3) polar bears moving into this area would increase competition among bears and ultimately affect polar bear survival. In addition, a small, higher-density population of polar bears in the Canadian Arctic would be subject to increased vulnerability to perturbations such as disease or accidental oil discharge from vessels. Because of the habitat changes anticipated in the next 40–50 years, and the corresponding reductions in reproduction and survival, and, ultimately, population numbers, we have determined that the polar bear is likely to be in danger of extinction throughout all or a significant portion of its range by 2050.

Issue 3: Anthropogenic Effects

Comment 14: Disturbance from and cumulative effects of oil and gas activities in the Arctic are underestimated or incompletely addressed.

Our response: Oil and gas activities will likely continue in the future in the Arctic. Additional, updated information has been included in the section ''Oil and Gas Exploration, Development, and Production'' in Factor A. We acknowledge that disturbance from oil and gas activities can be direct or indirect and may, if not subject to appropriate mitigation measures, displace bears or their primary prey (ringed and bearded seals). Such disturbance may be critical for denning polar bears, who may abandon established dens before cubs are ready to leave due to direct disturbance. We note that incidental take of polar bears due to oil and gas activities in Alaska are evaluated and regulated under the MMPA (Sec. 101a(5)A) and incidental take regulations are in place based on an overall negligible effect finding. Standard and site specific mitigation measures are prescribed by the Service and implemented by the industry (see detailed discussion in the section ''Marine Mammal Protection Act of 1972, as amended'' under Factor D).

Indirect and cumulative effects of the myriad of activities associated with major oil and gas developments can be a concern regionally. However, the effects of oil and gas activities, such as oil spills, are generally associated with low probabilities of occurrence, and are generally localized in nature, We acknowledge that the sum total of documented impacts from these activities in the past have been minimal (see discussion in the ''Oil and Gas Exploration, Development, and Production'' section). Therefore, we do not believe that we have underestimated or incompletely addressed disturbance from or cumulative effects of oil and gas activities on polar bears, and have accurately portrayed the effect of oil and gas activities on the status of the species within the foreseeable future.

Comment 15: The potential effects of oil spills on polar bears are underestimated, particularly given the technical limitations of cleaning up an oil spill in broken ice.

Our response: We do not wish to minimize our concern for oil spills in the Arctic marine environment. We agree that the effects of a large volume oil spill to polar bears could be significant within the specific area of occurrence, but we believe that the probability of such a spill in Alaska is generally very low. At a regional level we have concerns over the high oil spill probabilities in the Chukchi Sea under hypothetical future development scenarios (Minerals Management Service (MMS) 2007). An oil spill in this area could have significant consequences to the Chukchi Sea polar bear population (MMS 2007). However, under the MMPA, since 1991 the oil and gas industry in Alaska has sought and obtained incidental take authorization for take of small numbers of polar bears. Incidental take cannot be authorized under the MMPA unless the Service finds that any take that is likely to occur will have no more than a negligible impact on the species. Through this authorization process, the Service has consistently found that a large oil spill is unlikely to occur. The oil and gas industry has incorporated technological and response measures that minimize the risk of an oil spill. A discussion of potential additive effects of mortalities associated with an oil spill in polar bear populations where harvest levels are close to the maximum sustained yield has been included in this final rule (see discussion in the ''Oil and Gas Exploration, Development, and Production'' section).

Comment 16: The effects to polar bears from contaminants other than hydrocarbons are underestimated.

Our response: We added information on the status of regulatory mechanisms pertaining to contaminants, which summarizes what is currently known about the potential threat of each class of contaminants with respect to current production and future trends in production and use. Based on a thorough review of the scientific information on their sources, pathways, geographical distribution, and biological effects, and as discussed in the analysis section of this final rule, we do not believe that contaminants currently threaten the polar bear.

Comment 17: Cumulative effects of threat factors on polar bear populations are important, and need a more indepth analysis than presented in the proposed rule.

Our response: The best available information on the potential cumulative effects from oil and gas activities in Alaska to polar bears and their habitat was incorporated into the final rule (National Research Council (NRC) 2003). We also considered the cumulative effects of hunting, contaminants, increased shipping, increases in epizootic events, and inadequacy of existing regulatory mechanisms in our analyses. We have determined that there are no known regulatory mechanisms in place at the national or international level that directly and effectively address the primary threat to polar bears-the rangewide loss of sea ice habitat within the foreseeable future. We also acknowledge that there are some existing regulatory mechanisms to address anthropogenic causes of climate change, and these mechanisms are not expected to be effective in counteracting the worldwide growth of GHG emissions within the foreseeable future. In addition, we have determined that overutilization does not currently threaten the species throughout all or a significant portion of its range. However, harvest is likely exacerbating the effects of habitat loss in several populations. In addition, continued harvest and increased mortality from bear-human encounters or other forms of mortality may become a more significant threat factor in the future, particularly for populations experiencing nutritional stress or declining population numbers as a consequence of habitat change. We have found that the other factors, while not currently rising to a level that threatens the species, may become more significant in the future as populations face stresses from habitat loss. Modeling of potential effects on polar bears of various factors (Amstrup et al. 2007) identified loss of sea ice habitat as the dominant threat. Therefore, our analysis in this final rule has focused primarily on the ongoing and projected effects of sea ice habitat loss on polar bears within the foreseeable future.

Issue 4: Harvest

Comment 18: Illegal taking of bears is a significant issue that needs additional management action.